DOCUMENT RESUME

ED 237 890 CG 017 145

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TITLE Treatment of Conduct Disorders in Childhood: A Comparative Study.
SPONS AGENCY National Inst. of Mental Health (DHHS), Rockville, MD.
PUB DATE Aug 83
GRANT NIMH-MH-34279
NOTE 44p.; Paper presented at the Annual Convention of the American Psychological Association (91st, Anaheim, CA, August 26-30, 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Behavior Modification; *Behavior Problems; *Contingency Management; *Counseling Effectiveness; Counseling Techniques; Early Childhood Education; *Family Counseling; Intervention; *Parent Child Relationship; Reinforcement; *Young Children

ABSTRACT

Children evidencing conduct disorders comprise the bulk of clinical referrals. Longitudinal studies have found that the prognosis for these children is poor in that the majority exhibit antisocial behavior in adulthood. In order to compare two methods of treatment, relationship-based and contingency management, 53 children (33 boys, 20 girls), aged 4-7, who had been referred to a community mental health clinic for conduct disorders were assigned either to relationship-based treatment, contingency management, or to a waiting list. Pretreatment assessment included parental interview, personality and IQ testing, and home observations. Posttreatment assessment included home observations and feedback measures. Throughout the study the Dyadic Parent Child Interaction Coding System (DPICS) was used to monitor child deviance and noncompliance. In both treatment conditions, families were seen individually for seven or more videotaped sessions. Relationship-based training consisted of teaching the parents interaction skills in regard to play, prosocial behavior and social reinforcement. Contingency management training consisted of identifying and changing deviant behavior through point charts, homework assignments, and rewards. According to parent report measures both treatment groups improved relative to the control group. However, home observations revealed that only children assigned to the relationship-based approach significantly decreased deviance and noncompliance, which may be due to an emphasis on coaching parents in the use of social reinforcement. (BL)

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Treatment of Conduct Disorders in Childhood: A Comparative Study

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CG 017145

Running Head: Conduct Disorders

Paper presented at the meeting of the American Psychological Association, Anaheim: CA (August, 1983).

Abstract

The purpose of this study was to compare a relationship based model with a contingency management approach in the treatment of young conduct problem children. The subjects were 53 children (33 boys and 20 girls) between the ages of 4 and 7 years referred for treatment of problems such as aggression, noncompliance, tantrums, defiance and destruction of property. Parent report measures indicated that both treated groups improved relative to a 12-week waiting-list control group. Home observation revealed, however, that only children assigned to the parent-child interaction condition significantly decreased deviance ($p < .01$) and noncompliance ($p < .007$) between pretreatment and posttreatment assessment. Coding of videotaped therapy sessions suggested that differential results may have been due to parent-child interaction training's emphasis on coaching of parents in the use of social reinforcement. It was concluded that improving the relationship between a parent and a child may enhance the effeciveness of traditional behavior therapy with conduct problem children.

Treatment of Conduct Disorders in Childhood: A Comparative Study

A conduct problem dimension that includes behaviors such as physical aggression, temper tantrums, disobedience, destruction of property, impudence, disruption, attention-seeking, and stealing has been repeatedly identified in the empirical literature (Quay, 1979). The labels used to characterize this constellation of behaviors have varied among researchers (e.g., acting out, Levitt, 1971; antisocial, Robins, 1966; aggressive, Patterson, Cobb, & Ray, 1973; oppositional, Walker & Afton, 1980; noncompliant, Forehand & King, 1974), but the actions subsumed have consistently fallen within the conduct problem domain.

Children evidencing conduct problems have comprised the bulk of clinic referrals. Robins (1966) reported that 73% of her sample was originally referred for antisocial rather than withdrawn or neurotic behavior and Thomas, Chess, & Birch (1968) found that 81% of the children in their longitudinal study who manifested a psychological disorder were "active" rather than "passive" behavior problems.

Long-term follow-up of conduct problem children has suggested that their prognosis is poor. Robins reported, in a 30-year follow-up of 601 school age boys, that the children referred to child guidance clinics for antisocial behaviors showed, "Deviance from current social norms for good behavior and well-being in every area of adult adjustment examined" (Robins, 1966, p. 70). When studied in adulthood, 71% of the antisocial boys had been arrested, 50% had been jailed, and 25% had spent a year or more in prison. When compared with other clinic referrals, the antisocial group also evidenced more psychiatric and

discipline problems in the armed services (53% vs. 19%), had poorer work histories (85% vs. 11%), evidenced more marital difficulties (81% vs. 11%), engaged in more excessive drinking (72% vs. 27%), were more frequently socially isolated (56% vs. 19%), and had a higher dependence on public assistance (25% vs. 3%).

Traditional methods of treatment for conduct problem children have been notoriously unsuccessful (Levitt, 1971). Some researchers have suggested that children treated individually in therapy became worse (D'Angelo & Walsh, 1967), while those seen with one or both parents tended to improve (Gluck, Tanner, Sullivan & Erikson, 1964; Lessing & Shilling, 1966). While there has been general agreement that parents should be involved in the treatment of their children (see reviews by O'Dell, 1974; Reisinger, Ora, & Frangia, 1976; Tavormina, 1974), opinion has been divided regarding the best treatment methods to employ.

The two most frequently researched treatment modalities with conduct problem children are the contingency management approach devised by G. Patterson (1974) and the parent-child interaction training conceptualized by C. Hanf (Hanf & King, 1974). Both models involve parent training and are couched in general social learning terms, but they differ in focus. The parent-child interaction model emphasizes enhancing the parent-child relationship and devotes 50% of its therapy time to teaching parents to develop listening, observing, and communication skills. There is evidence that both contingency management and parent-child interaction training are effective, but there are no comparisons to date to determine their relative impact on the amelioration of conduct disorders.

There have been a number of group studies with clinical populations that have evaluated the effectiveness of contingency management training. The majority of those studies examined changes in the child's behavior before and after therapy, and, with one exception (Eyberg & Johnson, 1974), have reported a significant decline in the observed rate of child aversive behavior between pretreatment and posttreatment (e.g., Christensen, Johnson, Phillips, & Glasgow, 1980; Fleishman, 1981; Patterson, 1974; Patterson, Chamberlain, & Reid, 1982; Patterson & Reid, 1973; Walter & Gilmore, 1973; Weinrott, Bauske, & Patterson, 1979; Wiltz & Patterson, 1974).

While the evidence has consistently supported the conclusion that children change their behavior over the course of therapy, there have been few studies that have controlled for the effects of maturation and/or assessment. Only two studies have compared contingency management with a waiting-list control and those studies have yielded conflicting results. Using a small control sample (n = 6), Wiltz and Patterson (1974) found that aversive behavior rates were high and stable over a five-week wait while Bernal, Klinnert, and Schultz (1980) reported that 50% of the families in their ten-week waiting-list group showed a decline in observed child aversive behavior equivalent to that usually seen following treatment. Unfortunately, neither of these studies randomly assigned to the waiting-list condition.

There is a similar lack of information concerning the relative effects of contingency management treatment and other available forms of treatment. There are three comparative studies that have collected observational data, and two of them did not find the contingency management approach to be superior to an alternate form of therapy. Christensen and his colleagues (Christensen, et al.,

1980) found that, although results favored the groups that receive contingency management training, there were no significant differences in observed child deviance at posttreatment between those who received treatment and families who received minimal contact bibliotherapy (i.e., read the book, Living with Children; Patterson, 1976). Similarly, Bernal (1980) reported that contingency management was not significantly better than a client-centered treatment in which parents explored their attitudes and feelings about raising children. Patterson and his colleagues (Patterson et al., 1982) demonstrated that families treated at his center by experienced parent-trainers reduced deviance, whereas those treated by community based clinicians did not. Therapist clinical skill, therapist experience with conduct problem families, and the content of the sessions were not monitored and, as a result, it was not clear whether contingency management techniques or nonspecific treatment factors were responsible for the behavior change. Thus, there has been no unequivocal evidence that a contingency management approach is more effective than are alternate forms of therapy.

Published group studies that have used observational data to evaluate the effectiveness of the Hanf treatment model have reported positive outcomes. Hanf and Kling (1974) assessed the laboratory interactions of 28 severely noncompliant children and their mothers and reported an increase in compliance from 17% at pretest to 50% at posttest. Similar results have been reported by other investigators who increased compliance from 43% to 81% over the course of approximately six therapy sessions (Forehand & King, 1974). Following treatment, the compliance rates of the children have been reported to be similar to those of normal children (Eyberg & Robinson, 1982; Forehand & King, 1977).

The effectiveness of the Hanf model, however, has not been evaluated with adequate experimental controls. There has been only one comparison with a small waiting-list control group (n = 6; Peed, Roberts, & Forehand, 1977) and no published comparisons with other forms of treatment. One cannot be sure, therefore, that the reported changes would not have occurred without therapy.

The investigation reported below was designed to compare the effectiveness of parent-child interaction training and contingency management training in the treatment of young conduct problem children. The effects of maturation and assessment were evaluated through the use of a waiting-list control group and the process of therapy was carefully monitered. Therapists in both parent-training conditions were supervised by master clincians who were experts in their respective treatment approaches and, in addition, the clinical skill of those conducting the treatment and the content of their sessions were assessed to provide information regarding the quality of the interventions and whether or not the treatment was implemented.

Method

Subjects

The subjects were 53 families referred by community mental health professionals for treatment of a conduct problem child. The children were 33 boys and 20 girls between the ages of 4 and 8 years with presenting problems such as excessive aggression, noncompliance, tantrums, and defiance. All of the children were reported to exhibit 11 or more home behavior problems at screening (mean = 21.0) on the Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980). The parent who sought treatment (pritipal parent) was a mother

in 51 and a single father in two cases. Families were headed by a single parent in 55% of the cases and the remaining 45% were two-parent families. Less than 2% of the principal parents had not finished high school, 42% had a high-school education, 33% had partial college, 19% had a college degree, and 4% had graduate training. The mean Hollingshead four factor social class index indicated that 14% of the families were major professionals, 29% were minor professionals or technicians, 39% were in clerical or sales work, 16% were semiskilled, and 2% were unskilled. Means for the demographic variables are represented in Table 1.

Insert Table 1 about here

General Procedure

Families referred for treatment called a university psychology clinic and a research assistant obtained basic information. If the child was between 4 and 7 years old and the parent reported conduct problem behavior, an intake appointment was scheduled and the family was randomly assigned to either the parent-child interaction training, the contingency management treatment, or the waiting-list condition. Both parents were required to participate in two-parent families. All families were informed that they had a one-in-three chance of being placed on a waiting list, but were not told which condition they were assigned to until pretreatment assessment was completed.

The initial pretreatment assessment was conducted by a therapist over a three-week period and included an interview with the parent(s), a testing session, a feedback session, and four home observations. Posttreatment

assessment consisted of four home observations and two clinic visits one week apart.

Pretreatment assessment was completed on 56 families; three families were not appropriate for treatment (one child was psychotic and two were below the ECBI cut-off) and their data is not included in this report. Eleven families were assigned to the waiting list, ten of which were available for reassessment after 12 weeks. Of the families assigned to treatment, four families never attended the first session, eight discontinued against the therapist's advice (M = 4.2 sessions), four completed treatment but did not provide posttreatment observations, and the remaining 27 completed both treatment and posttreatment assessment. Of the 15 families who discontinued therapy or failed to provide posttreatment assessment, ten were in the parent-child interaction condition and five were in the contingency management group.

Measures

Tests. The following child report measures were completed by the parent(s): Eyberg Child Behavior Inventory (Robinson, et al., 1980), Becker Bipolar Adjective Checklist (Becker, 1960), and the Alpern-Boll Developmental Profile (Alpern & Boll, 1972).

The following measures were completed by the child: Piers-Harris Self-Concept Scale (Piers & Harris, 1969), Stanford-Binet Intelligence Scale Form L-M, (Terman & Merrill, 1973), and the Wide Range Achievement Test (WRAT; Jastak & Jastak, 1976).

Parents also completed a Parent Confidential Background Information Sheet (Robinson, 1980-a), the Shipley-Hartford Institute of Living Scale (Wiens & Banaka, 1960), a Pretherapy Expectations Questionnaire (Robinson, 1980-b), a

Posttherapy Treatment Evaluation (Robinson, 1980-c), the MMPI (Hathaway & McKinley, 1943), and the Dyadic Adjustment Scale (Spanier, 1976).

All measures were completed at pretreatment and posttreatment with the exception of the Pretherapy Expectations Questionnaire and the IQ measures which were given only at pretreatment, and the Posttherapy Treatment Evaluation which was given only at posttreatment. Both parents completed all measures except the Developmental Profile which was completed by the mother only.

Observational measure. The Dyadic Parent Child Interaction Coding System (DPICS; Eyberg & Robinson, 1981) was used throughout the study. Two outcome variables were selected from the DPICS, child deviance and noncompliance. Child deviance consisted of the total of the following child behaviors: whine, cry, destructive, smart talk, physical negative, and yell. These were summed over four days of observation. Noncompliance was the total number of times a child either refused to obey or ignored a parental command. Instances in which the child was given no opportunity to comply (e.g., quickly repeated commands) were not included

This coding system has been used reliably to distinguish between conduct problem and normal children (Robinson & Eyberg, 1981) and to reflect change following therapy (Eyberg & Robinson, 1982).

Observational Procedure

Home observation. The target child, both parents, and the sibling between 2 and 10 years closest in age to the target child were observed at home. Only data collected on the target child and the principal parent were included in this report. Families were asked to remain in two or three rooms, to leave the television off, to limit phone calls, and to decline visitors. All family

members were to be present for the entire observation which was scheduled to begin around the dinner hour on Monday through Thursday evenings. Observations were conducted for four days at pretreatment and posttreatment.

Observational data were collected on the interaction of two family members at a time in a random sequence of five-minute time blocks. The target child was observed interacting with the principal parent for a total of 120 minutes at pretreatment and posttreatment.

Observer training. Observer training was conducted by three experienced observers and included 16 hours of workshop training followed by approximately 20 hours of practice coding of videotaped parent-child interaction. When a criteria of 85% reliability was obtained coding tapes, the observers accompanied the trainer on home observations and coded live interactions. Coders were considered trained when they were able to consistantly code live interactions with 85% reliability. Weekly training sessions in which observers coded criterion videotapes and discussed their results were conducted throughout the study. Criterion coding was maintained at 80% or better. Two observers recorded during 314 5-minute segments. Reliability coefficients were, $r(314) = 0.87$, $p < .001$, for child deviance and, $r(314) = 0.65$, $p < .001$, for noncompliance. Observers ($n = 16$) were blind to condition.

Treatment

Treatment was individul and its length was based on client needs as determined by the therapist and her supervisor, but posttreatment assessment was conducted after 12 weeks. Six families had 7 to 11 and the remaining 21 families had 12 or more sessions. There were no significant differences between the parent-child interaction and contingency management conditions in number of

sessions.

Parent-child interaction training consisted of teaching parents to (a) use nondirective play skills, (b) identify and praise prosocial behavior (ex. sharing, persistent effort, creative play or cooperation), and (c) use time-out for disobedience. Contingency management included training in (a) pinponting problem behaviors, (b) devising point-charts for rewarding desirable behavior (ex. completing chores, going to bed on time), and (c) the use of time-out for undesirable behavior. Manuals were available for both forms of treatment (Eyberg, 1979; Patterson, Reid, Jones, & Conger, 1975).

Fees. All families paid the clinic intake fee ($25) and a sliding scale treatment fee of $1 to $24 per session. In addition, families deposited between $2 and $60 at the first therapy session. The deposit was forfeited at the rate of 50% for failure to complete a homework assignment. Approximately 36% of the families who completed treatment were fined once.

Therapist Training and Supervision. Therapists were trained by two experts in the use of their respective treatment approaches (Patricia Chamberlain of the Oregon Social Learning Center and Sheila Eyberg of Oregon Health Sciences University). Therapists received 40 hours of group workshop training over five days, three workshop-days were conducted prior to clinical contact and the remaining two workshop-days were held approximately four months later. Weekly group telephone supervision was conducted separately for therapists in each condition. Supervision of intake procedures and emergencies involving child abuse (three cases) or potential suicide (two cases) was provided by the author.

Therapists. The therapists were graduate students in clinical child

psychology (n = 6), developmental psychology (n = 2), or social work (n = 1). There were four therapists in the parent-child interaction condition and five in the contingency management condition. Therapists were blind to the hypotheses.

Evaluation of Therapy Sessions

Each therapy session was videotaped and a random sample of tapes from the first 20 cases to complete treatment was evaluated for the therapist's general clinical skills, the amount of time spent on-task, and the specific content of each session.

The amount of therapist and client time spent on-task was evaluated by the staff at the Oregon Social Learning Center using the Therapist Performance Schedule (TPOS; Fleishman, Reid, Arthur, Toobert, Stern, & Patterson, 1981) Therapy sessions were coded in six-second intervals for the following behaviors: no response, other, problem description, treatment, rehearsal, and assignment. The last four behaviors were defined as on-task behavior. They were summed and the percent of on-task intervals was calculated. Both client and therapist were coded. A total of six hours of therapy tapes were coded using TPOS, three hours in each condition. Two hours were coded by two observers and average reliability was 91.5%.

Clinical skills were evaluated using an eight-item scale completed by the TPOS observer to rate communication skills and overall quality of the session. Exact item by time agreement between the two observers on a five-point Likert Scale was 68.8%.

The content of therapy sessions was evaluated in 50-second segments using the Therapy Process Coding System (Robinson & Love, 1982). This system evaluated the content and method of presentation during therapy. Content codes

include time-out 1 (specific to parent-child interaction training), time-out 2 (specific to contingency management), time-out 3 (nonspecific), social reinforcement, negotiation training, pinpointing, attending/ignoring skills, commands, point charts, general discussion, other relevant content, administrative, blank, and irrelevant. Method of presentation categories were as follows: coaching, modeling, exchange, didactic, practice, and other. A random sample of six ten-minute therapy segments per case were selected and coded by a research assistant who was blind to the hypotheses.

Results

Therapy Outcome

Observational data. Children in the combined treated groups evidence less deviant behavior than do children in the waiting list condition at posttreatment. An analysis of covariance with the pretreatment score as the covariate indicates a significant effect of treatment, $F(1, 34) = 4.78$, $p < .036$, on observed child deviance. There is no significant effect of treatment on noncompliance, although the means suggest that the treated children decrease noncompliance.

The treatment effect is largely attributable to the changes evidenced by the children who receive parent-child interaction training. Those participating in parent-child interaction training, but not those in the contingency management or waiting-list groups, show a significant decline in both child deviance, $t(12) = 2.66$, $p < .01$, and in noncompliance, $t(12) = 2.88$, $p < .007$. The means are reported in Figures 1 and 2.

Insert Figures 1 and 2 about here

Parent report. Parent report measures consistently show improvement between pretreatment and posttreatment scores among children in both treatment conditions. Becker Bipolar Adjective Checklist scores indicate greater adjustment at postreatment than pretreatment among children in the parent-child interaction training condition on the following factors: Relaxed Disposition, $t(13) = -2.72$, $p < .01$; Withdrawn/Hostile, $t(13) = 2.04$, $p < .05$; Lack of Aggression, $t(13) = 4.16$, $p < .01$; Intellectual Efficiency, $t(13) = -2.88$, $p < .01$; and Conduct Problem, $t(13) = 4.18$, $p < .001$. The contingency management group changes in the direction of greater adjustment on Becker factors of Relaxed Disposition, $t(12) = -2.81$, $p < .01$; Withdrawn/Hostile, $t(12) = 1.96$, $p < .05$; Lack of Aggression, $t(12) = -3.78$, $p < .01$; and Conduct Problem, $t(12) = 8.89$, $p < .001$. The contingency management group does not change significantly on the Intellectual Efficiency scale. The waiting-list group changes on the Becker Intellectual Efficiency factor, $t(8) = 3.74$, $p < .01$ (see Table 2).

Insert Table 2 about here

All three groups improve significantly on the Eyberg Child Behavior Inventory. Problem and Intensity scores decrease respectively for the parent-child interaction ($t(13) = 6.04$, $p < .001$; $t(13) = 5.59$, $p < .001$) the contingency management ($t(12) = 6.08$, $p < .001$; $t(12) = 5.22$, $p < .001$) and the waiting-list groups ($t(8) = 4.49$, $p < .002$; $t(8) = 4.55$, $p < .002$). See Table

2 for the mean scores.

Comparison of the Conduct Problem and Aggression factors of the Becker and the Eyberg Child Behavior Inventory scores of the children in this study with those of the normative samples suggests that they are in the deviant range at pretreatment with mean scores more than one standard deviation above the average scores for normal children. At posttreatment, the children in both treated groups are reported to have scores similar to the normative samples, while the scores of the waiting-list children remain close to one standard deviation above normal levels. A comparison of the scores of the present sample with normative samples on the Becker and the Eyberg are graphed in Figures 3 through 5. The direction of scoring is reversed on the Figures for the following factors: Relaxed Disposition, Lack of Aggression, and Intellectual Efficiency so that high scores on all factors indicate poor adjustment.

Insert Figures 3 - 5 about here

Description of Families at Pretreatment

The three conditions do not differ at pretreatment on any of the test scores or subscale scores reported in Table 2 or in the observed rate of child deviance and noncompliance. Of the demographic variables listed in Table 1, only age of the child differs among the three groups ($F(3.49, 51) = 4.07$, $p < .05$). Children in the waitlist group are younger than those in the treatment conditions.

The MMPI scores of the principal parents tend to be elevated. Mean standard scores at pretreatment are as follows: lie = 50, F = 55, K = 53,

hypochondriasis = 54, depression = 61, hysteria = 59, psychopathic deviate = 64, masculinity/feminity = 45, paranoia = 59, psychasthenia = 58, schizophrenia = 54, mania = 52, social introversion = 59. An examination of the profiles of the first 20 parents completing treatment reveals that 55% of the principle parents evidence elevations of two standard deviations on at least one clinical scale.

Child Self-Concept

Scores on the Piers Harris Self-Concept Scale are within normal limits at the outset for all three groups (parent-child interaction training group, $\underline{M}$ = 53.6; contingency management group $\underline{M}$ = 59.5; waiting-list group, $\underline{M}$ = 46.0) and there are no significant changes between pretreatment and posttreatment in self-concept for any of the groups.

Content of Therapy

An average of 59.9% of the therapist's time is actively on-task and the remainder is spent discussing unrelated topics or listening. Thus, the therapist is engaged in description of the problem, treatment, rehearsal of skills, or discussion of an assignment during slightly more than half of the therapy session (range = 38.9% to 88.3%). There is no difference between the two treatment conditions in time on-task (contingency management, $\underline{M}$ = 62%; parent-child interaction training $\underline{M}$ = 57%). The clients are on-task an average of 37.0% (range = 29.9% to 56.5%) with no significant differences between the two conditions. There are, however, differences between the treatment groups in the focus of the on-task time.

Therapists in the parent-child interaction training condition spend significantly more therapy time than do those in the contingency management condition teaching attending/ignoring skills, $\underline{t}(19) = 4.80$, $\underline{p} < .002$, and social

reinforcement, $t(19) = 3.90$, $p < .002$. The contingency management therapist, however, spends more time than the parent-child interaction therapist on home-based point-charts for rewarding desirable behaviors, $t(19) = 4.97$, $p < .002$, in pinpointing specific target behaviors, $t(19) = 3.48$, $p < .01$, in general discussion of the child, $t(19) = 2.53$, $p < .05$, in discussion of other members of the family such as the sibling, $t(19) = 2.62$, $p < .02$, and in irrelevant discussion, $t(19) = 2.86$, $p < .05$. There are no significant differences between the two conditions in the amount of time spent on negotiation skills, commands, in administrative tasks, or in blank therapy time. Means are reported in Table 3.

Insert Table 3 about here

The parent-child interaction training and the contingency management groups also differ in training method used during therapy. The parent-child interaction therapists use significantly more coaching, $t(92) = 6.51$, $p < .002$, and practice, $t(19) = 3.10$, $p < .01$, whereas the contingency management therapists use more discussion, $t(92) = 6.12$, $p < .002$, than their respective counterparts. There are no significant differences between the two conditions in the use of didactic or modeling methods. These means are reported in Table 3.

Average therapist skill-ratings vary from 3.1 to 4.0 on a five-point scale indicating average to good performance on dimensions such as pacing, communication style, and transitions. There are no differences between the clinical ratings of the parent-child interaction ($M = 3.5$) and the contingency

management (M = 3.5) therapists.

Pretreatment Expectations

Parents in both treatment conditions report moderately high expectations for sucess at the outset of therapy. The means for the parent-child interaction training and contingency management groups are 49.2 and 47.7 respectively and do not differ significantly.

Consumer Satisfaction

Scores on the posttherapy treatment satisfaction measure are high for both groups and there are no significant differences between treatment conditions (parent-child interaction training, M = 54.9; contingency management, M = 50.6).

Discussion

The results of this study suggest that a relationship based approach to parent training may enhance the effectiveness of traditional behavior therapy with young conduct problem children. Direct observation of parent-child interaction in the home reveals that only the children who receive parent-child interaction training reduce child deviance and noncompliance. Examination of videotaped therapy sessions suggests that differences between parent-child interaction training and contingency management are unlikely to be due to the amount of time devoted to parent training during treatment or to the general level of therapist skill.

The success of the parent-child interaction model may be due to the content of the sessions and/or the teaching method. The parent child interaction therapists spend approximately 50% of therapy time developing the parent's relationship building skills such as attending and social reinforcement. In

contrast, the contingency management therapist spends the major portion of therapy working on point-charts and homework assignments. The parent-child therapists also make frequent use of live coaching of the parent, whereas, the contingency management therapists rely primarily on discussion of treatment procedures that are then implemented by the parent alone at home. These results suggest that the change in the child's behavior at home after parent-child interaction training may have been due to the emphasis on live coaching of relationship building skills. While it is not the purpose of this study to identify the active ingredients in treatment, the findings offer two possible causes of the differential success rate (therapy content and method) that bear further investigation.

There is an apparent contradiction between the observational data, which favors the parent-child interaction group, and the parent report measures, which indicate no differences between the two groups. One possible explanation for this finding is that the parent completed questionnaires may not accurately assess differential treatment effects. There is a tendency for written measures of child adjustment to change in the direction of less pathology at retesting, regardless of whether or not the family receives treatment (Peed, Roberts, & Forehand, 1977). Several parent-report measures in this study corroborate previous findings by indicating significant improvement among children in the control group. It is possible, therefore, that written instruments are overly sensitive to repeated use and may not be capable of discriminating among treatments.

The lack of observable change in the contingency management group replicates those of other researchers. Eyberg and Johnson (1974) report that

parents indicate significant improvement in their child's behavior over the course of treatment, but that no significant changes occur in home observed deviance. Similarly, Ferber, Keeley, and Schemberg (1974) note that their families do not make meaningful behavior change following contingency management intervention. The majority of the studies indicating a positive effect for the contingency management app oach to child therapy have been conducted in the laboratory of the intervention's designer (Patterson, 1974; Patterson, et al., 1982; Patterson & Reid, 1973; Weinrott, et al., 1979; Wiltz & Patterson, 1974). Patterson (Patterson et al., 1982) suggests that there are two primary reasons for the failure of some researchers to replicate his findings, (a) they use time-limited therapy and (b) the therapists are inexperienced graduate students. In the present study, treatment is not time limited. The decision to terminate a case is made by the therapist in consultation with her supervisor. The present results represent data collected after 12 weeks of therapy, but treatment continues beyond that point in many cases. If an innappropriately short treatment time is responsible for the lack of behavior change, then follow up of these families should reflect continued improvement and the elimination of behaviorial differences between the two groups. That data will be available shortly and the hypothesis will be tested.

Novice therapists are used in this study and, even though they were trained and supervised by a master therapist from Oregon Social Learning Center, it is possible that their lack of sophistication may be responsible for their limited sucess. The parent-child interaction therapists are, however, equally new to psychotherapy and the clients under their tutelage do show treatment gains. Parent-child interaction training may be easier to implement than is contingency

management. If this is true, then one would recommend that neophyte therapists employ parent-child interaction training. Future research is necessary to resolve this issue.

Treatment issues are not the only factors that may contribute to the favorable outcome for the parent-training group. Both the disproportionate number of families who fail to finish treatment and the divergent pretreatment levels of deviant behavior between the two groups may bias the results in favor of the parent-child interaction training group.

Twice as many families fail to provide posttreatment data in the parent-child interaction condition as compared with the contingency managment group. Careful examination of the pretreatment assessment of the completors and those who fail to finish indicates that the children in both groups are equally deviant. The drop-out families, however, tend to have somewhat lower incomes and to be headed by single mothers more frequently than the completors; ten one-parent families and only five two-parent families do not complete posttreatment. Since the parent-child interation condition contains more single-parent families than do the other groups, this factor may contribute to the drop-out rate. It is, of course, also possible that the treatment is not acceptable to all parents or that families who are difficult to treat fail to provide posttreatment data. As a result, the conclusions of the present study must be considered tentative until replicated.

The differences among the groups in pretreatment child deviance and noncompliance are not statistically significant, but they are large and may have influenced the findings. Patterson claims that his treatment is most effective with high-rate deviant children (see Patterson et al. 1982). It is possible

that extremely disruptive children are more responsive to treatment via contingency management than are others. It is also possible, however, that a host of other factors influence outcome with high-rate children. We do not yet know the characteristics associated with high-rate deviance in sufficient detail to understand why these children do better in treatment. They may, for example, be younger than their less disruptive counterparts, or they may evidence less serious or persistent problem such as whining and crying versus stealing or lying. Nevertheless, by inadvertently excluding these children from the contingency management sample, the treatment approach may have been at a disadvantage at the outset and consequently the results must be interpreted cautiously.

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Footnotes

The author is grateful to the therapists who volunteered their time for this research project; Donna Cohen, Mary Kolpacoff, Kathy Melman, Marsha Gad, Laura Feshbach, Carol Cole, Michelle DeKlyen, Gillian Murrah, and Heather Carmichael-Olson. Thanks is also due to Sean O'Donnell, Ginger Waters, Linda Anderson, Donna Kost, Andrea Torres, the home observers, and to the coder trainers, David Bennett, Sharon Smith, and John Holttum. The contribution of Sharon Smith in managing the data analysis is particularly appreciated as is the assistance of Catherine Iiams and John Holttum in preparing the manuscript.

This research was supported by National Institute of Mental Health grant #MH34279 to E. A. Robinson.

Table 1
Demographic Information

	Parent-child interaction training (n = 24) Mean	Contingency management (n = 18) Mean	Waiting list (n = 11) Mean	All subjects (n = 53) Mean
Age in years				
Child	6.3	6.1	5.0	5.9
Parent	29.9	31.1	30.5	30.5
Sex of child				
percent male	62.5	77.8	36.3	62.3
Number of children in household	1.6	1.9	2.3	1.9
Education of parent in years	13.7	13.5	13.7	13.6
Income	3.7	4.5	4.3	4.1
(Range)	($10,000-14,999)	($15,000-19,999)	($15,000-19,999)	($15,000-19,999
Hollingshead socioeconomic status	36.2	40.3	50.5	41.1
Single parent families in percent	66.6	44.4	45.5	54.7
Children with previous treatment in percent	43.5	27.7	9.1	30.8
Parents with previous psychotherapy in percent	45.8	35.3	54.5	44.2
Length of parents' psychotherapy in weeks	91.9	54.7	83.0	71.1

Table 2

Parent Report of Child's Behavior Before and After Treatment

	Contingency managagement (n = 13)		Parent-child interaction training (n = 14)		Waiting list (n = 11)	
Measures	Pre	Post	Pre	Post	Pre	Post
Eyberg Child Behavior Inventory						
Problem score	20.8	10.5***	20.5	9.7***	22.3	18.7**
Intensity score	153.6	114.2***	153.5	107.5***	163.4	139.6**
Becker Checklist						
Relaxed disposition	-6.2	-1.8**	-8.7	-2.6**	-7.0	-4.9
Withdrawn/hostile	-19.4	-21.7*	-15.6	-21.1*	-14.0	-16.1
Lack of aggression	-7.9	-1.8**	-10.9	-2.3***	-8.0	-5.7
Intellectual efficiency	13.3	12.8	5.6	13.6**	4.1	3.7
Conduct problem	11.2	1.3***	9.9	.9***	10.9	6.1**

*$p < .05$

**$p < .01$

***$p < .001$

Table 3
Therapy Content and Method

	Parent-child interaction $\bar{X}$ (SD)	Contingency management $\bar{X}$ (SD)	t
Content category[a]			
Social reinforcement	19.9 (10.2)	4.1 (6.1)	3.9***
Attending/ignoring	12.4 (6.8)	0.7 (1.1)	4.8***
Commands	4.8 (5.0)	1.1 (1.7)	2.0
Contracting	1.5 (2.8)	13.3 (3.1)	3.5**
Negotiation	0.1 (0.3)	0.0 (0.0)	1.1
Time-out$_1$	0.0 (0.0)	1.8 (2.6)	3.3**
Time-out$_2$	3.9 (3.9)	0.0 (0.0)	2.8*
Time-out$_3$	1.6 (2.3)	4.5 (2.9)	2.4*
General	12.4 (11.8)	23.9 (6.2)	2.5*
Other	0.1 (0.3)	4.7 (5.8)	2.6*
Administrative	1.1 (1.6)	2.7 (2.7)	1.6
Irrelevant	0.1 (0.3)	1.8 (1.9)	2.9*
Method[a]			
Coaching	18.1 (7.9)	0.0 (0.0)	6.5***
Discussion	20.1 (11.5)	49.8 (8.1)	
Practice	10.4 (9.5)	0.0 (0.0)	3.1**
Didactic	2.6 (2.0)	1.6 (2.0)	1.2

Figure Captions.

Figure 1. Child deviance observed before and after treatment.

Figure 2. Noncompliance observed before and after treatment.

Figure 3. Parent-child interaction training group

Parent report of child deviance before and after treatment

(1 = tense disposition, 2 = withdrawn/hostile, 3 = aggression, 4 = intellectual deficiency, 5 = conduct problem, PS = problem score, IS = intensity score).

Figure 4. Contingency management group

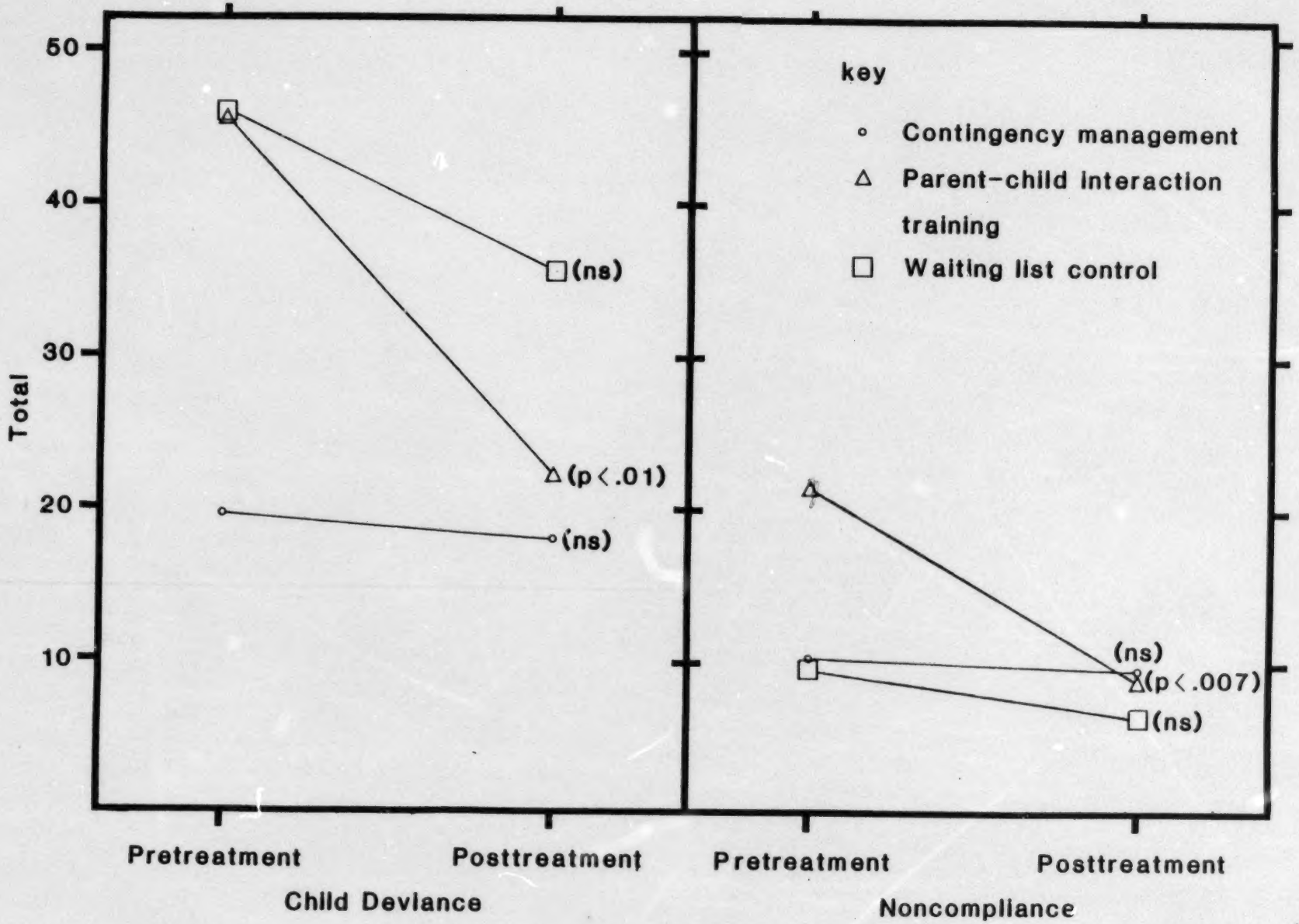
Parent report of child deviance before and after treatment

(1 = tense disposition, 2 = withdrawn/hostile, 3 = aggression, 4 = intellectual deficiency, 5 = conduct problem, PS = problem score, IS = intensity score).

Figure 5. Waiting-list group

Parent report of child deviance before and after treatment

(1 = tense disposition, 2 = withdrawn/hostile, 3 = aggression, 4 = intellectual deficiency, 5 = conduct problem, PS = problem score, IS = intensity score).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Child Deviance
Pretreatment
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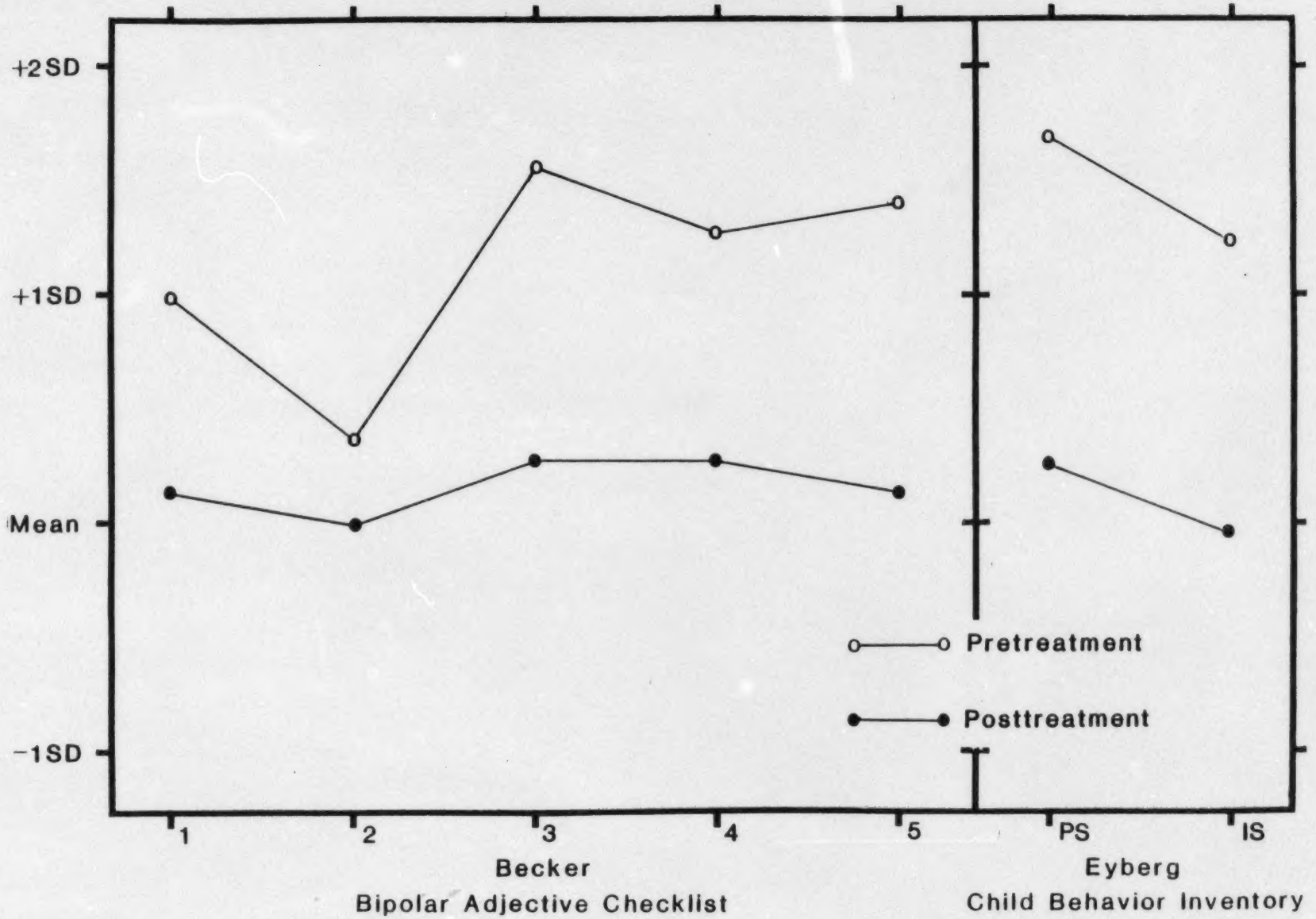
Noncompliance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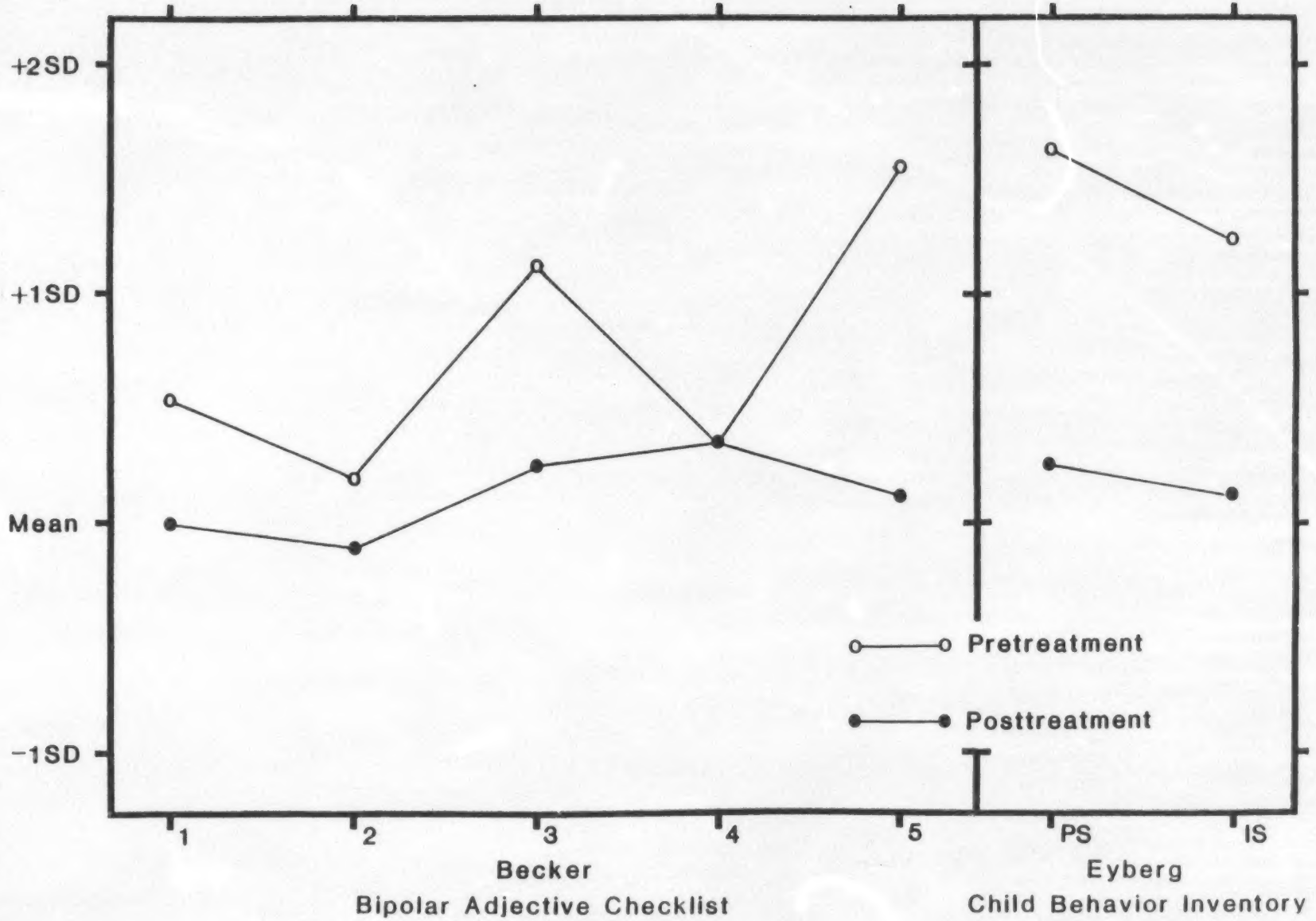
Eyberg
Child Behavior Inventory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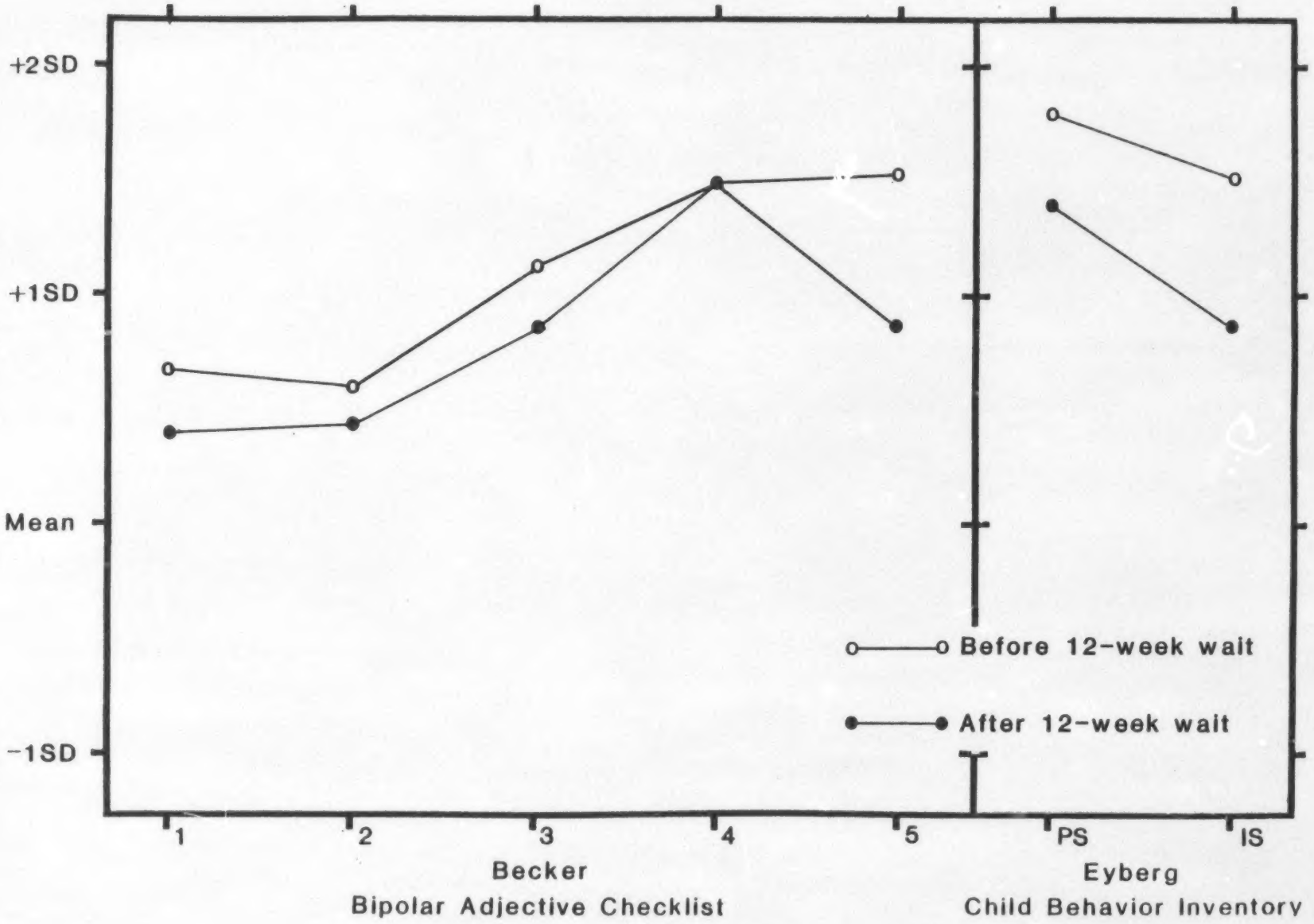
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Before 12-week wait
After 12-week wait